

DESIGN GUIDELINES

USAREUR-Restoration Program of Troop Billets - Standard 1+1

		SOURCE
B 03	PLANNING AND DESIGN CRITERIA	B 01
The guidelines apply to buildings with basement and attic. Exceptions can be made to buildings without basements, buildings with flat roofs etc.		B 02
Prior to starting design coordination with "USAREUR" is required to determine the location of rooms to be accommodated in the basement and/or the attic.		B 03
B 03.1.1	Standard Floors	B 04
NCO bedrooms consist of one room, min. 236 SF (approx. 22 m ²) with private bathroom, walk-in closet and kitchenette.		B 05
Soldiers bedrooms consist of one room, minimum 118 SF (approx. 11 m ²) with bathroom between two rooms, walk-in closet for each room and shared kitchenette.		B 06
Additional Accommodation on Each Floor:		B 07
<ul style="list-style-type: none"> - 1 janitor's closet - 1 kitchen, if more than 15 bedrooms are located on one floor. 		B 08
Only one kitchen is required, if less than 15 bedrooms are located in the building.		B 09
B 03.1.2	Basement	B 10
All mechanical rooms shall be accommodated in the basement.		B 11
Design of mechanical rooms provide for a separate access from outside, if feasible, and a combined arrangement. If a combination is not feasible, their location shall previously be coordinated with "USAREUR".		B 12
Mechanical rooms (combined):		B 13
Heating, ventilation, sanitary and sprinkler		B 14
Electrical rooms as single rooms:		B 15
1 room for high voltage current 1 room for TV, telephone, Telekom, electronical data processing If required by DPW: 1 room for 1 central battery system		
2 latrine facilities – separate for women / men		
A shower shall be designed for each latrine facility		
1 room for washers and dryers (laundry room)		
- one each dryer and washer shall be provided for every 10 barracks spaces in the building		
2 arms rooms		
1 janitor's closet		
1 mud room		
All other rooms of the basement shall be upgraded; they shall be used as office and/or storage rooms.		

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<p>B 03.1.3 Accommodation in the Attic: All general rooms such as: 1 game room to be used for table tennis and billiard 1 room for telephones 2 latrines, separate for women / men 1 janitor's closet storage bin rooms</p> <p>Storage bins (for soldier's luggage) for 100 % of the bedrooms shall be installed in the attic storage bin rooms.</p> <p>Bedrooms in the attic are acceptable, if provided by the geometry of the attic.</p> <p>A kitchen shall be accommodated only, if more than 15 bedrooms exist in the attic.</p> <p>Dimensions and equipment see standard designs Single room descriptions see</p> <p>B 03.1.4 Room numbering: All rooms shall be numbered as follows: the floor numbering shall be put in front of the room numbering.</p> <p>The numbering starts with the stairwells, e.g. stairwell 01, 02 etc., then the numbering of corridors follows e.g. 03. All corridor sections per floor will be provided with the same number, e.g. 03. All following rooms shall be numbered consecutively clockwise per floor.</p> <p>Project acc. to standard layout fig. 06.3 shall be numbered as follows: The anteroom will be provided with a number, the bedrooms located behind will receive the same number adding "A" or "B" (e.g. anteroom 110, bedroom (1) 110A and/or bedroom (2) 110B). Room numbers on all drawings shall be shown in door openings. (See standard layout Chapter B06).</p> <p>The combined mechanical area will be provided with one room number; the single rooms in mechanical will be only provided with the information what they are housing, e.g. heating room, electrical room etc. If these rooms are located distributed on floor, they shall be included in the consecutive room numbering.</p> <p>The observance of numbering is important due to SAFLOK-programming.</p> <p>B 03.1.5 Exterior Building Surfaces Exterior building surfaces, including roofs, where required shall be required and/or replaced. The scope of work shall be determined with USAREUR in a work description upon commencement of design.</p> <p>Free standing canopies shall be installed above building entrances. These shall be accomplished – as far as an "Installation Design Guide" for the real estate is existing - acc .to design guidelines included therein or adjusted to the design elements existing in real estate.</p> <p>B 03.1.6 Provided in Exterior Area: Bicycle stands, waste bins, POV-parking lots, picnic tables, benches, landscaping, planting, paved areas for garbage and waste containers. The scope of accomplishment will be determined in a work description of USAREUR upon commencement of design.</p>	B 01
	B 02
	B 03
	B 04
	B 05
	B 06
	B 07
	B 08
	B 09
	B 10
	B 11
	B 12
	B 13
	B 14
	B 15

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B 03.2	STANDARDS, GUIDELINES AND CONSTRUCTION CRITERIA	ABG 75	B 01
The construction measures shall be performed by German authorities according to German legal and administration requirements in their own name and under their own responsibility. Applicable standards and requirements must be observed. If, in the individual case, the U.S. Forces impose more stringent requirements in the field of public safety and order, these shall be observed.			B 02
			B 03
B 03.2.1	Sound Insulation	DIN 4109	
DIN 4109 Sound Insulation in Building Construction			B 04
Requirements for building elements are defined as follows; they represent minimum values and shall be observed.			
Floors: (living and bedrooms and corridors in apartments)			B 05
Airborne sound insulation $R'w \geq 54 \text{ dB}$ Evaluated standard impact sound level $L'_{n,w} \leq 53 \text{ dB}$ Impact sound insulation value $TSM \geq 10 \text{ dB}$			B 06
Exception: (bathrooms in apartments, kitchens) A screed with separation layer and 2 layers Etafoam shall be installed in bathrooms. More important is an effective sealing, see			B 07
Floors: (corridors and janitor's closets) as far as sufficient construction height exists in corridors and a cement screed of at least 45 mm thickness can be installed as pressure distribution layer, following values shall be observed:			B 08
Airborne sound insulation $R'w \geq 54 \text{ dB}$ Evaluated standard impact sound level $L'_{n,w} \leq 53 \text{ dB}$ Impact sound insulation value $TSM \geq 10 \text{ dB}$			B 09
If the above listed construction is not possible and the cast stone covering shall be installed directly to the ceiling construction, the exception applies that only one layer Etafoam with one separation layer shall be installed. Sound bridges to walls shall be strictly avoided by suitable separations.			B 10
Corridors in basement will be installed in thick bed directly to the reinforced concrete slab in composite.			B 11
Stairs/Platforms: (new facilities) Evaluated standard impact sound level $L'_{n,w} \leq 58 \text{ dB}$ Impact sound insulation value $TSM \geq 5 \text{ dB}$			B 12
Exception: (following values shall be observed for stairs and platforms taken over from as-built) Stairs / platforms $L'_{n,w} \leq 46 \text{ dB}$ taken over from as-built $TSM \geq 5 \text{ dB}$			B 13
Walls: (intermediate walls between living – bedrooms, from living – bedrooms to kitchens or janitor's closets) Airborne sound insulation $R'w \geq 53 \text{ dB}$			B 14
			B 15

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<p>Partition walls: (within living-bedrooms to bathrooms) between bedrooms Airborne sound insulation $R'w \geq 42 \text{ dB}^*$</p> <p>*Note: Wall constructions – tiles and plaster incl. bricks shall be provided with at least 160 kg/m².</p> <p>Corridor walls, walls of mechanical rooms: (where located in living and sleeping floors, kitchen walls etc.) Airborne sound insulation $R'w \geq 52 \text{ dB}$</p> <p>Walls of game room: in the attic shall be provided with special sound insulation as far as living and bedrooms will be installed in attic. Airborne sound insulation $R'w \geq 55 \text{ dB}$</p> <p>Doors: Entrance doors into apartment and as access to (living-bedrooms, kitchens, janitor's closets): Airborne sound insulation $R'w \geq 32 \text{ dB}^*$ *R_{w,P} = sound insulation value of door facility installed ready to operate.</p> <p>Entrance doors bedrooms in apartment: (standard layout fig. 06.3) Airborne sound insulation $R'w \geq 32 \text{ dB}^*$ *R_{w,P} = sound insulation value of door facility installed ready to operate.</p> <p>Entrance doors – bathroom: Airborne sound insulation $R'w \geq 28 \text{ dB}$</p> <p>Windows shall be accomplished at least in sound protection class III Observed shall be at least $R'w \geq 37 \text{ dB}$ Windows see also</p> <p>If higher sound protection requirements are necessary or other requirements, the requirements shall be determined with USAREUR upon commencement of design.</p>			B 01
			B 02
			B 03
			B 04
			B 05
			B 06
			B 07
<p>B 03.2.2 Thermal Protection</p> <p>DIN 4108 Thermal protection in building construction Thermal protection Ordinance, edition 1/95 Energy saving law</p> <p>Thermal protection and heating system regulation valid at design must be observed.</p> <p>It is the declared aim of US Government to lower until 2030 the energy consumption by 35 % for protection of our climate as well as lowering of our energy reserves.</p> <p>A thermal protection proof acc. to A/V-procedure shall be provided for each building to be planned in the scope of Final Design (95 %), a heat requirement certificate acc. to § 12 thermal protection regulation shall be prepared, proof shall be kept acc. to enclosure 1 digit 1 and 6 of thermal protection regulation.</p>		VDI 2719	B 08
		B 07.4.1 Page 181	B 09
		DIN 4108	B 10
		WSchV EneG	B 11
			B 12
			B 13
			B 14
			B 15

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<p>The designers shall try to achieve the aimed maximum permissible year heat requirement or to improve it by measures in building – essentially by arrangement of insulations in roof area, open passages and in basement area.</p> <p>Facade insulations are not desired. These shall remain an exception.</p> <p>Application of thermal protection ordinance for buildings under monument and ensemble preservation must remain in economically justifiable cost relationships. (Coordination concerning procedure with USAREUR prior to commencement of design).</p>		B 01
		B 02
		B 03
<p>B 03.2.3 Damp proofing:</p> <p>The buildings designed for alteration are basically existing buildings with no longer effective damp proofing.</p> <p>Missing horizontal damp proofing against rising moisture shall not be installed in existing basement walls due to high expenditure.</p> <p>If new building elements shall be installed in basements, they shall be damp proofed in accordance with valid construction principles.</p> <p>All basement walls shall be damp proofed from outside. In the area of soil contact, exterior basement walls shall be provided with thermal insulation (perimeter insulation), which also allows surface water drainage.</p> <p>All basement floors – with exception of mechanical room floors with composite screed – shall be damp proofed against rising moisture according to DIN 18 195.</p> <p>All newly installed bathrooms / latrine facilities / janitor's closets and kitchens shall be damp proofed on two levels. Leaflet "Notes for sealing in connection with coverings made of tile and slabs for the interior area" shall be observed.</p> <p>Applicable standards and guidelines e.g.: DIN 18 195 – Structure sealings, part 1-10 Guidelines for the design and accomplishment of roofs with sealings. Guidelines for the design and accomplishment of sealings of earth touched construction parts with flexible sealing sludges Guidelines for the design and accomplishment of sealings of earth touched construction parts with synthetic modified bitumen thick coatings</p> <p>All regulations of the construction trade, general construction findings, State Building Codes and/or Exemplary Building Codes must be additionally observed.</p>	<p>DIN 18 195 T 1-10</p> <p>DIN 18 195</p> <p>Mkbl ZDB</p> <p>DIN 18 195 Ril ZDD</p> <p>Ril AMB</p> <p>Ril AMB</p>	<p>B 04</p> <p>B 05</p> <p>B 06</p> <p>B 07</p> <p>B 08</p> <p>B 09</p> <p>B 10</p> <p>B 11</p> <p>B 12</p> <p>B 13</p> <p>B 14</p> <p>B 15</p>

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B 03.2.4 Accident Protection / Health Protection		B 01
The following listed rules and guidelines are listed as example; all further rules shall be used as far as applicable.		
Accident Protection:		B 02
Guidelines of the Federal Association of Accident Insurances of Public Authority (BAGUV – Bundesverband der Unfallversicherungsträger der öffentlichen Hand) shall be observed e.g.		B 03
<ul style="list-style-type: none"> - More safety in case of broken glass - Protection against accidents on stairs and in corridors - Reviewed floor finishes - positive list - 	Mkbl GUV 56.3 560 210	B 04
Further guidelines of BAGUV are mentioned in the following descriptions.		
Health Protection:		B 05
Construction materials and/or procedures designated for the execution shall observe the requirements of hazardous material regulation and technical guidelines. These are for example:		
<ul style="list-style-type: none"> - Hazardous Waste Ordinance - Technical directional concentration (TRK) for hazardous materials - Observance of air limits - Asbestos, demolition, renovation or maintenance work - Fiber dusts 	GefStoffV TRGS 102 TRGS 420 TRGS 519 TRGS 521	B 06
<ul style="list-style-type: none"> - Renovation and working in contaminated areas - Tar and other pyrolysis products of organic materials 	TRGS 524 TRGS 551 TRGS 555	B 07
Operation instructions and training as per § 20 GefStoV		
<ul style="list-style-type: none"> - Substitutes, substitute procedures and use restrictions for strongly solvent-containing primers and adhesive agents for floor finishes - Substitutes for asbestos 	TRGS 610 TRgA 601	B 08
Guidelines for working in contaminated areas	ZH 1/183	B 09
Special emphasis shall be paid to the adherence with processing instructions of mineral wool insulation material (BIA/BG recommendation)	BIA/BG	
The CHC-Halon-prohibition ordinance of May 6, 1991, shall be observed; only DIBt*-approved materials shall be installed.	IfBT *)	B 10
Action instruction for removal of wood floors installed with PAK containing glues.		B 11
Federal immission protection law	BlmSchG	
B 03.2.5 Construction criteria:		B 12
The renovation concept shall be developed with extreme care. Contaminants shall be already determined in the first survey procedure (in the scope of Concept Design).		
The buildings shall be renovated vibration low with careful repair technologies . Technologies such as drilling and sawing shall be used. Chiselling and demolition with vibration intensive equipment shall be reduced as far as possible in order to avoid cracks.		B 13
		B 14
		B 15

*) Deutsches Institut für Bautechnik, Berlin